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By: Melod J. Ambrey #8

PATENT AS
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF:

THOMAS L. RITZDORF ET AL.

APPLICATION No.: 09/885,451

FILED: JUNE 20, 2001

FOR: METHOD AND APPARATUS FOR
LOW TEMPERATURE ANNEALING
OF METALLIZATION MICRO-
STRUCTURES IN THE PRODUCTION
OF A MICROELECTRONIC DEVICE

CONFIRMATION No. 3390

ART UNIT: 1741

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**Information Disclosure Statement Within Three Months of
Application Filing or Before First Action - 37 CFR 1.97(b)**

Commissioner for Patents
Washington, D.C. 20231

Sir:

1. Timing of Submission

This information disclosure is being filed within three months of the filing date of this application or date of entry into the national stage of an international application or before the mailing date of a first Office action on the merits, whichever occurs last [37 CFR 1.97(b)]. The references listed on the enclosed Form PTO-1449 (modified) may be material to the examination of this application; the Examiner is requested to make them of record in the application.

2. Cited Information

☒ Copies of the following references are enclosed:

- ☐ All cited references
- ☐ References marked by asterisks
- ☒ The following:

AHN, E. C. et al. "Adhesion Reliability of Cu-Cr Alloy Films to Polyimide" *Materials Research Society Symposium Proceedings*, 1996, Vol. 427, pp. 141-145, Materials Research Society.

ALERS, G. B. et al. "Trade-off between reliability and post-CMP defects during recrystallization anneal for copper damascene interconnects" *IEEE International Reliability Physics Symposium*, 2001, pp. 350-354.

GLADKIKH, A. *et al.* "Activation Energy of Electromigration in Copper Thin Film Conductor Lines" *Materials Research Society Symposium Proceedings*, 1996, Vol. 427, pp. 121-126, Materials Research Society.

KONONENKO, O. V. *et al.* "Electromigration In Submicron Wide Copper Lines" *Materials Research Society Symposium Proceedings*, 1996, Vol. 427, pp. 127-132, Materials Research Society.

MEI, Y. *et al.* "Thermal Stability and Interaction Between SIOF and Cu Film" *Materials Research Society Symposium Proceedings*, 1996, Vol. 427, pp. 433-439, Materials Research Society.

RUSSELL, S. W. *et al.* "The Effect of Copper on the Titanium-Silicon Dioxide Reaction and the Implications for Self-Encapsulating, Self-Adhering Metallization Lines", *Materials Research Society Symposium Proceedings*, 1992, Vol. 260, pp. 763-768, Materials Research Society, Pittsburgh, PA.

☒ Copies of the following references can be found in parent application Ser. No. 09/018,783:

- ☐ All cited references
- ☒ References marked by asterisks
- ☐ The following:

- ☐ The following references are not in English. For each such reference, the undersigned has enclosed (i) a translation of the reference; (ii) a copy of a communication from a foreign patent office or International Searching Authority citing the reference, (iii) a copy of a reference which appears to be an English-language counterpart, or (iv) an English-language abstract for the reference prepared by a third party. Applicant has not verified that the translation, English-language counterpart or third-party abstract is an accurate representation of the teachings of the non-English reference, though, and reserves the right to demonstrate otherwise.

- ☐ All cited references
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- ☐ The following:

3. Effect of Information Disclosure Statement (37 CFR 1.97(h))

This Information Disclosure Statement is not to be construed as a representation that: (i) a search has been made; (ii) additional information material to the examination of this application does not exist; (iii) the information, protocols, results and the like reported by third parties are accurate or enabling; or (iv) the cited information is, or is considered to be, material to patentability. In addition, applicant does not admit that any enclosed item of information constitutes prior art to the subject invention and specifically reserves the right to demonstrate that any such reference is not prior art.

4. Fee Payment

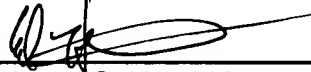
No fees are believed due. However, should the Commissioner determine that fees are due in order for this Information Disclosure Statement to be considered, the Commissioner is hereby authorized to charge such fees to Deposit Account No. 50-0665.

5. Patent Term Adjustment (37 CFR 1.704(d))

- ☐ The undersigned states that each item of information submitted herewith was cited in a communication from a foreign patent office in a counterpart application and that this communication was not received by any individual designated in 37 C.F.R. § 1.56(c) more than thirty days prior to the filing of this statement. 37 C.F.R. § 1.704(d).

Date: 22 Nov 02

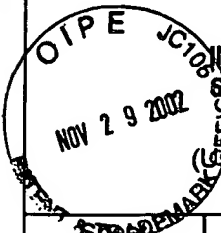
Respectfully submitted,
Perkins Coie LLP



Edward S. Hotchkiss
Registration No. 33,904

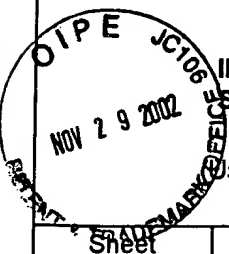
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<div style="text-align: center;">  <p>INFORMATION DISCLOSURE STATEMENT BY APPLICANT Form PTO-1449 (Modified) (Use several sheets if necessary)</p> </div>	COMPLETE IF KNOWN		
	Application Number	09/885,451	
	Confirmation Number	3390	
	Filing Date	February 20, 2001	
	First Named Inventor	Thomas L. Ritzdorf	
	Group Art Unit	1741	
	Examiner Name	Unknown	
Attorney Docket No.	29195-8170US2		
1	of	6	

U.S. PATENT DOCUMENTS						
Examiner Initials	Cite No.	U.S. Patent or Application		Name of Patentee or Inventor of Cited Document	Date of Publication or Filing Date of Cited Document	Pages, Columns, Lines, Where Relevant Figures Appear
		NUMBER	Kind Code (if known)			
		*2,443,599		Allen E Chester	06/22/48	
		*3,894,918		Corby et al.	07/15/75	
		*4,250,004		Miles et al.	02/10/81	
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		*4,687,552		Early et al.	08/18/87	
		*4,891,069		Holtzman et al.	01/02/90	
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		*5,600,532		Michiya et al.	02/04/97	
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		*6,074,544		Reid et al.	06/13/00	
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		*6,278,089		Young et al.	08/21/01	
		*6,280,183		Mayur et al.	08/28/01	

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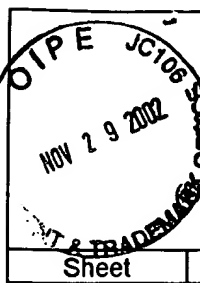
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U.S. PATENT DOCUMENTS					
		U.S. Patent or Application			
		*6,297,154		Gross et al.	
				10/02/01	

FOREIGN PATENT DOCUMENTS								
Examiner Initial	Cite No.	Foreign Patent or Application			Name of Patentee or Applicant of Cited Document	Date of Publication or Filing Date of Cited Document	Pages, Columns, Lines, Where Relevant Figures Appear	T
		Office	NUMBER	Kind Code (if known)				
		EP	*0 751 567 A2		Intl. Business Machines Corp.	01/02/97		
		EP	*0 881 672 A2		Intl. Business Machines Corp.	12/02/98		
		EP	*0 982 771 A1		Lucent Technologies, Inc.	03/01/00		
		WO	*98/27585		Intl. Business Machines Corp.	06/25/98		

OTHER PRIOR ART-NON PATENT LITERATURE DOCUMENTS				
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Sheet 4 of 6

OTHER PRIOR ART-NON PATENT LITERATURE DOCUMENTS

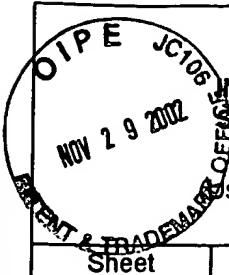
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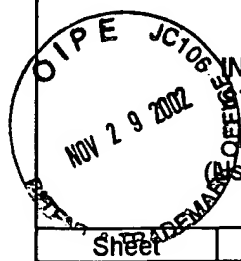
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		*WONG, C.C., SMITH, H.I., and THOMPSON, C.V., "Room Temperature Grain Growth in Thin Au Films, from <i>Grain Boundary Structure and Related Phenomena</i> , supplement to <i>Transactions of Japanese Institute of Metals</i> , 27, p. 641 (1986).	
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		*Edelstein, D. et al, "Full Copper Wiring in a Sub-0.25µm CMOS ULSI Technology", IEEE, pp. 773-776, 1997.	
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		*Russell, S.W. et al., "The Effect of Copper on the Titanium-Silicon Dioxide Reaction and the Implications for Self-Encapsulating, Self-Adhering Metallization Lines," Materials Research Society Symposium Vol 260 - Advanced Metallization and Processing for Semiconductor Devices and Circuits - II (May 1992) pp 763-769	
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